California Academy of Sciences.

THE

PRESIDENT'S ANNUAL ADDRESS,

DELIVERED JANUARY 6TH, 1873.

TOGETHER WITH THE CONSTITUTION,

ADOPTED MAY 15, 1871,

AND

LIST OF OFFICERS AND MEMBERS FOR 1873.

SAN FRANCISCO:
Edward Bosqui & Co., Printers, Leidesdorff Street, cor. Clay.
1873.

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PRESIDENT'S ADDRESS.

In his annual address of 1868, Professor J. D. Whitney gave a condensed History of the Academy, from its inception in 1853, through the dark days from 1858 to 1865 when but thirty-six members were added to its numbers, to its revival in 1868, and we need not repeat it.

The life of the Institution has been a hard struggle in this city; but from the sheer vitality of scientific truth, it has succeeded, in spite of the indifference of those who were devoting their energies to business. In the last few years, our balance sheet, presented at each annual meeting, generally showed a minus quantity, even after the most rigid economy and self-denial. If a few dollars surplus was discovered, the members indulged in sanguine congratulations and bright visions of the future. But for the last twelve months our financial exhibit is more favorable than we dared hope; the Treasurer's account showing a balance of $1,550 to our credit. A deep and active interest has been awakened among our citizens having scientific instincts, and willing to aid us by their membership and encourage us by their attendance. This healthy manifestation was very

notably developed by the presence of Professor Agassiz, who arrived from his natural history voyage around the Americas, and exhibited, as he felt, the liveliest concern for our success. That he fully appreciated the labors of the Academy is shown by the fact that he had the whole of one volume of our proceedings transcribed, because there was but a single copy belonging to the library. His first greeting to the Academy—after a silence of three years—imbued our friends with the true spirit, and we heartily thank those who in one hour thereafter had secured half a dozen life members to our ranks, and have not ceased doing good work. His stirring appeal in behalf of science at the reception given to him by the Academy, aroused the dormant desire for scientific study and investigations, and we trust that our efforts will steadily maintain it.

In the last twelve months, seventy-eight resident and corresponding members, and eleven life-members, have joined the Academy; and by death, resignation and non-payment of dues we have lost twenty-nine. But of those dropped for non-payment of dues, so many date back for three years that only one-third can really be charged to the past year. The Treasurer's list exhibits six resignations and two deaths.

During the year, we have lost by death one of the oldest supporters and life members of the Academy, F. L. A. Pioche; two resident members, Robt. B. Swain and Albert S. Evans; and three corresponding members, Sebastien Réné Lenormand, of Lenandiere, France; Dr. William Stimpson, of Chicago; and Roderick I. Murchison, President of the Royal Geographical Society and numerous learned societies.

We have now on our rolls about one-hundred and seventy-five resident members, paying dues, and with a maintained interest we should have not less than two-hundred and twenty-five by the end of the year.

Among our present active members it is pleasant to note some of those who, nineteen years since, formed themselves into the body then denominated the "California Academy of Natural Sciences"—Drs. Stout, Kellogg and Gibbons.

In looking back upon the records for some years, I have been astonished to find how irregularly and meagerly the minutes of the proceedings have been kept; for one or two years they are largely made up of the newspaper reports of the meetings—partially corrected, it is true, but lacking that terse condensation which should characterize all technical papers. The last year's minutes afford a markedly favorable change. To still further better it, I have made personal appeals to the members, when contributing any facts or investigations of interest and value, to reduce them to writing for the use of the Secretary, making any extended remarks or explanations verbally, if necessary. This is due to the Secretary, whose time, like all of ours, is fully occupied professionally, and who does this labor gratuitously. This method of record is also advisable and necessary for the reputation of the Academy, so that any question of priority may be substantiated.

The preparing of the material for the next volume of the proceedings, I have undertaken to transcribe, with the promised assistance of members in their specialties, and so soon as pressing official duties permit, the work will be entered upon, according to the Constitution. This

should be done by a Committee of Publication. In connection therewith, the Constitution and Lists of Members will be published, and a card with the names of the officers for the year, and the dates of our regular meetings.

The labors of our Treasurer merit our thanks, because he has assiduously followed us all closely with his bills, and with good results.

In one respect the Academy is sadly deficient; its library is small, very far from full, not well arranged, and requires systematic cataloguing. Much material collected on the coast cannot be described for want of works of reference, and of necessity must wait description or identification, or be sent East, when the credit accrues to others. Where we cannot secure books by exchange, it is indispensable to our success that we purchase, and yet the means at our disposal will not permit this beyond the most restricted limits. The duties of the librarian are gratuitous, and it would be unjust to suggest that he is responsible for the meagerness of the library, or really for its condition. It is part of our duty, individually and collectively, to aid in this, as in all other duties, until we are in a condition to pay for them.

During the year, the additions to the Library from home and foreign societies, have been about the same as in previous years, and have been properly acknowledged by the Corresponding Secretary. Donations from individuals have been few; purchases none.

The additions to the museum have been liberal, and of great value and interest, and those requiring acknowledgement have promptly received it. Upon the return of our fellow-member, Harry Edwards, from Mazatlan,

we will receive from him a good collection of entomological specimens; and citizens of San Francisco and the Sandwich Islands have promised rare objects in natural history, from the Arctic and Antarctic. In the temporary use of part of the herbarium for reference, the Director of the museum will keep it in order and make additions thereto. For want of space, we cannot exhibit a tithe of our collection, in any department, and the ardor and generosity of collectors are repressed.

But we are now in a condition where success seems assured, if we but continue our efforts. To maintain our claim as a scientific body, I earnestly appeal to each and every one in his specialty, to make a resolution unto himself, that he will furnish not less than two papers of original investigations during each year. This will insure more than one paper of interest at each meeting, besides the usual verbal and short communications. Many of these papers will necessarily have important bearings upon the material interests of the Pacific States. The Forests, the Fisheries, the Mines, the Agriculture, the Manufactures and Commerce of the country, afford ample fields for technical investigation, leading to the best practical methods of production and development. In no department of Art and Manufacture, Agriculture and Commerce, can the most profitable results be obtained, except through purely scientific investigations and deductions; and it is our duty, as it it our pleasure, to demonstrate their ultimate practical money value, if we seek support from those who reap the rewards without the labor. The enormous waste of material, of labor, and of time, seen in nearly every workshop and manufactory, in every locomotive and steamship, in every

mine and work of improvement, prove that scientific knowledge and method are lacking. These facts are well known to the capitalist and the manufacturer, but because they do not study the logical sequences of our knowledge, they are too apt to ignore our claims. They are well known in Europe and in many of the Eastern States, but the marvelous and easily-gotten wealth from our Mountains, our Valleys, and our Forests, have blinded our people. When the valleys have been overtaxed and the impoverished soil yields a bare livelihood, the teachings of Chemistry will be sought and must be heeded to make them again remunerative; when the forests have been depleted—as they are being at the rate of hundreds of square miles per year on this coast—the botanist will be asked to designate the best trees to replace those destroyed. With proper methods, we need not ship any of our ores to the East or to Europe for reduction.

It is gratifying to the Academy to know that some of the papers read during the year, have been largely copied abroad, in advance of our regular publication; not only for their scientific, but for their practical value. And we may be proud that two of our active members are editing such works as Stretch's "Illustrations of the Zygænidæ and Bombycidæ of North America," and Scammon's "Natural History of the Cetaceans and other Marine Mammals of the Pacific Coast of America."

But a practical question stares us broadly in the face—the financial success of the Academy. We need room to properly exhibit to the members, and to the public, our present collection and its prospective additions; we

need a larger number of scientific works and the proper means of keeping them; a good supply of the current scientific Literature of Europe and the East; and means and facilities for investigations. With an ample supply of current scientific literature, a monthly resumé of investigations, experiments, discussions and discoveries abroad will be within the scope of our proceedings, and add very much to their practical value, and aid those who are pursuing special investigations. These needs demand larger accommodations, and necessarily larger outlay.

We need funds sufficient to make some remuneration for the services of Director of the Museum, Librarian, Secretary, Janitor, etc., and for the publication of our proceedings. Our present receipts will warrant us in seeking more commodious quarters, but nothing more. The Trustees have had these matters seriously at heart, and have received the opinions of many of the members. For some months they have been engaged in seeking for a larger and better building; but thus far with no success. To merit the confidence and an increased liberal support of our friends outside the Academy, the members must make the proceedings of each meeting instructive, and therefore interesting and attractive. The main burden will generally come upon a few, but they must endeavor to imbue others with their spirit, and thus lighten their self-imposed labors by their being shared. The first generation of California youth is growing up, and we must enlist their surplus of vitality and enthusiasm by offering and affording them means of study and investigation. If we are to live as a scientific body, we must use all our influence in endeavoring to obtain the continuance and support of men of wealth

and liberal views. There are those in this community who could endow our institution for all time with their average income of one week. We certainly can go to them with unselfish aims; whilst they have been gathering riches, we have given our days and nights to science. They are sending their sons to our University, to the East, and to Europe to gather fruit from the old storehouses of knowledge, in civil, mining, and mechanical engineering—the three professions that are to be paramount on this coast; yet that very knowlege is paid for at the lowest living rates, and imparted by learned men who receive the scantiest pittance.

From our citizens of affluence we must claim a broader liberality to the specialist who gives his time and means to investigations that furnish fresh pabulum to our Colleges and Universities. As in the case of the Geological Survey, the State at large profits by the results of scientific investigation, and might well profit by the example of Europe in fostering the studies of specialties. If we cannot hope for this, we must not rest until we have secured the support of individuals whose children will be proud that their names stand as honored patrons of science.

CONSTITUTION.

ARTICLE I.

NAME AND OBJECT.

SECTION 1. This Society shall be known as the CALIFORNIA ACADEMY OF SCIENCES.

SEC. 2. The object of this Society is the promotion of science; and this is to be accomplished by the holding of meetings for scientific intercourse and discussion, by the reading and publication of papers containing original contributions to science, by the establishment of a museum and library, and by other suitable means.

ARTICLE II.

MEMBERS.

SECTION 1. The Academy shall consist of resident, life, corresponding, and honorary members.

SEC. 2. Resident members shall be elected in the manner hereinafter prescribed, from among persons residing within one hundred and fifty miles of San Francisco.

SEC. 3. Any resident member may at any time after his election become a life member, by paying into the treasury of the Academy the sum of one hundred dollars and notifying the Recording Secretary that he desires to be enrolled as a life member. The Trustees shall have the privilege of nominating for election for honorary life membership such members as have rendered valuable services to the Academy; such elections not to exceed three annually.

SEC. 4. The business of the Academy shall be exclusively managed by, and its officers selected from, the resident and life members.

SEC. 5. Corresponding members shall be elected in the manner hereinafter prescribed, from persons not residing within one hundred and fifty miles of San Francisco; and any resident member removing from within those limits will become a corresponding member, provided his dues have been paid up to the date of his removal, and he notify the Recording Secretary that such is his wish. Corresponding members will also become resident members on removing to within this distance of San Francisco, and notifying the Recording Secretary to that effect, and that such is their wish. But persons elected as corresponding members, who shall take up their residence within the distance of one hundred and fifty miles from San Francisco, and who shall not desire to be enrolled as resident members, shall cease to be corresponding members from the time of removal. Corresponding members shall have the privilege of visiting the museum and library, and of attending the meetings of the Academy, when in the city, but they shall not have the right to vote or hold office.

SEC. 6. Honorary members shall have all the privileges of resident members, except those of voting and holding office; they shall not exceed forty in number, twenty of whom shall be residents and citizens of the United States, and twenty of foreign countries.

SEC. 7. Each candidate for resident membership must be proposed in writing, at a stated meeting of the Academy, by at least two other resident or life members; and the name of the person thus proposed must have been posted in a conspicuous position in the hall of the Academy at least two weeks before he can be balloted for, and such balloting must be at a stated meeting of the Academy. Corresponding members shall be elected in the same way as resident members; and the number of each of these classes is unlimited. Honorary members shall be elected only at the annual meeting, and must have been proposed by the Trustees at least four weeks before such meeting, and the names of the candidates posted in a conspicuous place in the hall of the Academy. Any candidate for resident, corresponding, or honorary membership must, to be elected, have received the votes of at least four-fifths of the members present; and no more than one candidate can be balloted for on one ticket.

SEC. 8. No person rejected as a candidate for membership shall be eligible again within one year after the time of such rejection.

SEC. 9. Any person may be expelled from the Academy for cause, and after due hearing, by a vote of at least two-thirds of the members

present; but proceedings for such expulsion can be initiated only at a stated meeting, which may however be adjourned from time to time, but not beyond the time of the next stated meeting after the one at which the proceedings for such expulsion were initiated. No person expelled from the Academy shall ever, under any circumstances, again become a candidate for election to membership.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Academy shall be a President, a Vice-President, a Corresponding Secretary, a Recording Secretary, a Treasurer, a Librarian, a Director of the Museum, and seven Trustees.

SEC. 2. The President, Recording Secretary, and Treasurer shall be *ex-officio* Trustees of the Academy.

SEC. 3. The officers shall be elected by ballot, at the annual meeting, on open nomination, and must receive a majority of the votes cast, only one officer being elected at each balloting. The number of Curators shall be designated, and they shall be appointed by the Trustees.

SEC. 4. The President of the Academy, or in case of his absence or inability to serve, the Vice-President, shall preside at the meetings of the Academy, and shall name all committees, excepting such as are otherwise especially provided for. He shall, at the annual meeting, make a report on the condition and progress of the Academy, in all its departments. He shall also, at the annual meeting, announce the deaths of members which may have taken place during the year, and shall accompany such announcement with biographical notices in the case of persons eminent in science.

SEC. 5. The Recording Secretary shall keep a record of the proceedings of the Academy, and of the Trustees; shall receive and refer to the publication committee the papers presented for publication; and shall furnish an abstract of the proceedings of the Academy for publication. He shall give suitable notice of the time and place of the meetings of the Academy, whether annual, stated or adjourned. He shall keep a duly classified list of the members, and shall attend to such other business in his department as the Trustees may direct.

The Corresponding Secretary shall attend to the distribution of the publications of the Academy to the resident and other members entitled to the same, and conduct the correspondence with societies and individuals. He shall also notify members of their election, and furnish them with diplomas.

SEC. 6. The Treasurer shall attend to all receipts and disbursements of the Academy, giving such bonds and furnishing such vouchers as the Trustees may require. He shall collect all dues from members, and keep a set of books showing a full account of receipts and disbursements. He shall furnish the Trustees, from time to time, as they may require, with a list of members entitled to vote; and make a general report, to be laid before the Academy by the President at the annual meeting.

SEC. 7. The Librarian shall have charge of the library, and shall enforce such rules for its management as may be drawn up by the Trustees. He shall furnish a report on the additions to, and condition of the library, to be communicated by the President at the annual meeting.

SEC. 8. The Director of the Museum shall have the general care and oversight of the museum and scientific collections of the Academy, assisted by such Curators as may be appointed by the Trustees. He shall furnish a report on the condition of his department, to be communicated by the President at the annual meeting.

SEC. 9. In case of vacancy caused by the death or resignation of any officer, the fact shall be announced to the Academy by the President, and an election to fill the vacancy shall be had at the next meeting after such announcement shall have been made.

ARTICLE IV.

MEETINGS.

SECTION 1. The annual meeting of the Academy shall be held on the first Monday of January, provided that this is not the first day of the month, in which case the meeting shall be held the succeeding Tuesday. The stated meetings shall be held on the first and third Monday of each month. Field meetings and excursions may be held at such time and place as the Academy may direct. The time

of the annual meeting shall be advertised in some newspaper published in San Francisco, at least twice before the day of the meeting.

SEC. 2. Any annual or stated meeting may be adjourned from time to time, for the purpose of closing up unfinished business, but not beyond the time of the next stated meeting.

SEC. 3. In case the Board of Trustees shall deem it desirable, a special meeting may be called at any time by the President, every resident member being notified through the post office, or by advertising in the newspapers.

SEC. 4. Meetings of the Board of Trustees shall be held quarterly: on the second Monday of January, second Monday of April, second Monday of July, and second Monday of October. Meetings of the Board of Trustees may be called at any other time, at the call of the President, every member not absent from the city being duly notified. The President shall also call a meeting of the Board of Trustees whenever requested to do so by any other member of the Board of Trustees.

Four members shall constitute a quorum for the transaction of business.

ARTICLE V.

ASSESSMENTS.

SECTION 1. Resident members shall pay three dollars as an initiation fee, and three dollars per quarter in advance, as their regular contribution toward defraying the expenses of the Academy. The sum paid as an initiation fee shall include the cost of a diploma. The payment of the quarterly dues of the officers shall be left optional.

SEC. 2. No member who shall not have paid his dues, shall take part in the business of the Academy, and the names of members more than one year in arrears shall be stricken from the rolls by the Recording Secretary, and no member thus dismissed from the Academy shall be eligible again until after one year has elapsed from the date of such dismissal.

ARTICLE VI.

PUBLICATIONS.

SECTION 1. The publications of the Academy shall be directed as to their style and amount by the Committee of Publication, under the general supervision of the Trustees.

SEC. 2. The resident, life and honorary members shall be entitled to receive, free of cost, each one copy of all publications issued by the Academy during the time of their membership.

ARTICLE VII.

AMENDMENTS.

SECTION 1. This Constitution may be amended at any stated meeting, by a vote of two-thirds of the members present; but the proposed amendment must have been presented to the Board of Trustees in writing, at least one month before the day of meeting. The Board of Trustees shall present to the Academy any amendment thus offered, with a report on the question of its adoption, and with such amendment as they see fit.

BY-LAWS.

ARTICLE I.

MEETINGS.

SECTION 1. The weekly and annual meetings of the Academy shall be held on Monday evening at such place as the Academy shall determine; and the hours of meeting shall be as follows: From the first of September to the first of May, at half-past seven; and during the remainder of the year, at eight o'clock in the evening.

ARTICLE II.

RULES OF ORDER.

SECTION 1. The parliamentary rules, as adopted and practised in deliberative bodies in the United States, shall be the rules of order in the transaction of business of this Academy, except so far as these are modified by the Constitution of this Academy.

ARTICLE III.

ORDER OF BUSINESS.

1. Reading of the minutes of the previous meeting.
2. Reports of Investigating Committees.
3. Election and reception of new members.
4. Propositions for membership.
5. Donations to the cabinet.
6. Donations to the library.
7. Written communications.

8. Verbal communications.
9. Reports of Standing Committees.
10. Reports of Special Committees.
11. Unfinished business.
12. Reports of officers.
13. Election of officers.
14. New business.
15. Adjournment.

ARTICLE IV.

AMENDMENTS.

SECTION 1. The By-Laws of this Academy may be altered or amended at any regular meeting, by a two-thirds vote; provided that the proposition for such amendment or alteration shall have been presented and filed with the Recording Secretary, at least two weeks previous to taking a vote thereon, and published by the Recording Secretary at each intervening meeting.

AMENDMENT TO THE BY-LAWS.

ADOPTED FEBRUARY 5, 1872.

The officers of this Society are prohibited from incurring any indebtedness on behalf of this Society, unless authorized by the Board of Trustees, or by a vote of this Academy at a regular meeting.

OFFICERS.

PRESIDENT.

GEORGE DAVIDSON.

VICE PRESIDENT.

JOHN HEWSTON, Jr.

CORRESPONDING SECRETARY.

HENRY G. HANKS.

RECORDING SECRETARY.

CHARLES G. YALE.

TREASURER.

ELISHA BROOKS.

LIBRARIAN.

C. N. ELLINWOOD, M. D.

DIRECTOR OF THE MUSEUM.

H. G. BLOOMER.

TRUSTEES.

ROBERT E. C. STEARNS.
OLIVER ELDRIDGE.
THOS. P. MADDEN.
D. D. COLTON.

The President, Secretary, and Treasurer, are Trustees *ex officio*.

CURATORS.

General Zoology,	W. H. DALL.
Icthyology,	GEORGE HEWSTON, M. D.
Conchology,	W. G. W. HARFORD.
Ornithology,	WM. BLUNT.
Entomology,	R. H. STRETCH.
Palæontology,	W. A. GOODYEAR.
Mineralogy,	THEO. A. BLAKE.

COMMITTEE OF PUBLICATION.

GEORGE DAVIDSON, R. E. C. STEARNS,
CHAS. G. YALE, HARRY EDWARDS,
ALBERT KELLOGG, M. D.

COMMITTEE ON FOREIGN PUBLICATIONS.

A. B. STOUT, M. D.
H. N. BOLANDER,
EMILE DURAND.

HONORARY MEMBERS.

NAME.	RESIDENCE.	ELECTED.
AGASSIZ, LOUIS	Cambridge, Mass.	1854, Feb. 13
BAIRD, SPENCER F.	Washington, D. C.	1855, Jan. 22
BUNSEN, ROBERT,	Heidelberg, Germany	1870, Jan. 3
DANA, JAS. D.	New Haven, Conn	1870, Jan. 3
DARWIN, CHARLES	Kent, England	1872, Jan. 2
EDWARDS, HENRY MILNE.	Paris, France	1870, Jan. 3
EHRENBERG, CARL G.	Berlin, Prussia	1872, Jan. 2
ENGLEMAN, GEORGE.	St. Louis, Mo.	1870, Jan. 3
GRAY, ASA	Cambridge, Mass.	1857, Mar. 23

HELMHOLTZ, H. L. F.	Berlin, Prussia.	1870, Jan. 3
HENRY, JOSEPH	Washington, D. C.	1853, Sept. 19
HOOKER, J. D.	London, England	1870, Jan. 3
HUXLEY, T. H.	London, England.	1870, Jan. 3
LEA, ISAAC.	Philadelphia, Pa.	1853, June 13
MUELLER, FERDINAND	Melbourne, Victoria	1863, Oct. 19
PHILIPPI, RUDOLPH A.	Santiago, Chili	1864, Sept. 19
PEIRCE, BENJAMIN	Cambridge, Mass.	1870, Jan. 3
QUETELET, ADOLPHE J. L.	Brussels, Belgium	1856, July 28
STORER, DAVID H.	Boston, Mass.	1854, June 26
TORREY, JOHN	New York, N. Y.	1857, Mar. 23
WHITNEY, J. D.	Cambridge, Mass.	1871, Jan. 2
WYMAN, JEFFRIES	Boston, Mass.	1870, Jan. 3

CORRESPONDING MEMBERS.

NAME.	RESIDENCE.	ELECTED.
ALDEN, J. M., U. S. N.	Washington, D. C.	1857, Mar. 10
ALEXANDER, W. D.	Honolulu, H. I.	1867, Oct. 21
ANDREWS, E. B.	Marietta, Ohio	1853, Nov. 7
ANTISELL, THOMAS, M. D.	Washington, D. C.	1855, Mar. 12
AYRES, W. O., M. D.	———, ———	——, ——
BALFOUR, J. H.	Edinburgh, Scotland	1867, May 6
BATES, HENRY WALTER	London, England	1867, May 6
BELCHER, W. C. S.	———, ———	1868, Jan. 4
BIGELOW, J. M., M. D.	Detroit, Michigan	1854, May 1
BINNEY, W. G.	Burlington, N. J..	1863, Nov. 2
BLAKE, GORHAM	———, ———	——, ——
BOURNE, W. O.	New York, N. Y.	1853, Nov. 7
BREVOORT, J. C.	Long Island, N. Y.	1870, Jan. 17
BRIDGES, ROBERT	Philadelphia, Pa.	1853, June 22
BRIGHAM, W. T.	Boston, Mass.	1864, April 18
BROWN, ROBERT	Edinburgh, Scotland	1867, March 2
BUDD, B. W.	New York, N. Y.	1854, Feb. 27
CALDBECK, J. B.	Singapore, E. I.	1867, May 6
CARPENTER, P. P.	Montreal, Canada	1863, Feb. 2
CHRISTIE, W. D.	———, ———	1868, Jan. 4
CLAYTON, JOSHUA E.	———, ———	1855, Nov. 26
COMRIE, P., M. D.	Victoria, Vancouver I.	1866, Sept. 17

CONDON, REV. THOMAS	Dalles, Oregon	1870, Oct. 3
CONNOR, P. EDWARD	Utah	1854, Dec. 4
COPE, EDWARD D.	Haddington, N. J.	——, ——
CRAVERI, FREDERICO	Bra, Piedmont	1859, April 25
DALL, W. H.	Washington, D. C.	1867, Mar. 18
DAVIS, CHAS. F.	Lima, Peru.	1872, Mar. 18
DAVIS, IRA, M. D.	Norwich, Vermont	1853, Aug. 22
DELAFIELD, JOSEPH	New York, N. Y.	1853, June 20
DRAUPHING, ALEX.	San Sebastian	1863, Oct. 19
ESMARK, PROF. LAU	Christiana, Norway	1870, Oct. 3
FRAUENFELD, GEORGE T.	Vienna, Austria	1857, Feb. 16
GARRETT, ANDREW	Honolulu, H. I.	1857, May 12
GIBBS, GEORGE	Washington, D. C.	1857, Mar. 23
GILL, THEODORE	Washington, D. C.	——, ——
GIRARD, CHARLES	Paris, France	1855, Jan. 15
GLASS, LIEUT.-COM. HENRY	Washington, D. C.	1872, Nov. 7
GOTTGETREN, RUDOLPH	Munich, Bavaria	1872, Feb. 19
GUNTHER, ALBERT, M. D.	London, England	——, ——
HALL, PROF. JAMES	Albany, N. Y.	1857, June 29
HASWELL, JAMES	Edinburgh, Scotland	1867, May 6
HEMPHILL, HENRY	San Diego, Cal.	1870, July 18
HILLEBRAND, WM., M. D.	Honolulu, H. I.	1865, March 6
HOBSON, J. W.	———, ———	——, ——
HODGES, A. D., JR.	———, ———	——, ——
HORN, GEORGE H.	Philadelphia, Pa.	1862, Feb. 17
JACOBS, R. C.	Chihuahua, Mexico	1867, Jan. 21
JEWETT, EZEKIEL	Lockport, N. Y.	1868, April 6
KIRTLAND, J. P.	Cleveland, Ohio	1863, March 2
KLIPPART, JOHN	Columbus, Ohio	1865, May 15
*KONINCK, L. G. DE	Liege, Belgium	1857, July 28
LANSZWEERT, L.	———, Belgium	1857, July 28
LAPHAM, I. A.	Milwaukee, Wisconsin	——, ——
LAWRENCE, GEO. N.	New York, N. Y.	1863, Nov. 2
LAWSON, J. S.	Olympia, Wash. Ter.	1871, Jan. 16
LE JOLI, AUGUSTE	Cherbourg, France	1855, June 25
*LE NORMAND, RÉNÉ	Vire, France	1855, Nov. 5
LE PLONGEON, AUGUSTE, M.D.	Lima, Peru	——, ——

*Deceased.

LESQUEREUX, LEO	Columbus, Ohio	1862, May 18
LOEHR, FERDINAND VON	———, Germany	——, ——
*MANN, HORACE	Boston, Mass.	1864, April 18
MARCON, JULES	Paris, France	1862, Oct. 20
MARTIN, REV. DR. W. A. P.		——, ——
McCORMICK, R. C.	———, Arizona	1867, Jan. 21
McGOWAN, J., M. D.	———, China	1866, Aug. 6
MORRELL, DR. J.	Colima, Mexico	1871, Nov. 21
MORRELL, S. W.	Mazatlan, Mexico.	1863, Oct. 19
*MURCHISON, R. I.	London, England	1867, May 6
MURRAY, ANDREW, M. D.	Edinburgh, Scotland	1859, April 25
PARRY, C. C., M. D.	Davenport, Iowa	1854, Feb. 27
PICKERING, CHARLES	Boston, Mass.	1853, June 20
PURDY, E. SPARROW	Cairo, Egypt	1872, April 1
PUTNAM, F. W.	Salem, Mass.	1863, July 6
RICHTHOFEN, F. VON	Pekin, China	——, ——
RIOS, DR. A. J.	Lima, Peru.	1870, Sept. 19
RIOS, DR. MIGUEL.	Lima, Peru	——, ——
SAUNDERS, MORTON W.	———, ———.	1872, Oct. 21
SCAMMON, CAPT. C. M.	Washington, D. C.	——, ——
SCHMIDT, L. C.	Eureka, Cal.	1867, Nov. 18
SCLATER, PHILIP LUTLEY	London, England	1863, April 20
SELYS, LONGCHAMPS, ED.	Liege, Belgium	1857, July 28
SHUMARD, B. F.	St. Louis, Missouri	——, ——
SMITH, JOHN ALEX., M. D.	Edinburgh, Scotland	1867, May 6
SPENCE, F. M.	Victoria, Vancouver I.	1863, Aug. 3
STEVENSON, JOHN J.	———, ———.	——, ——
STEWART, H. I.	———, ———	1872, Oct. 21
*STIMPSON, WILLIAM, M. D.	Chicago, Ill.	1855, Nov. 5
STONE, CHARLES P.	———, ———	1854, Oct. 16
SUCKLEY, GEORGE, M. D	New York, N. Y.	1857, Mar. 23
SULLIVANT, W. S.	Columbus, Ohio	1863, May 18
SWALLOW, G. C.	Columbus, Missouri	1857, May 11
SWAN, JAMES G.	Neeah Bay, Wash. Ter.	1854, Feb. 27
TAYLOR, ALEX. S.	Santa Barbara, Cal.	1853, Sept. 19
THURBER, GEORGE	New York, N. Y.	1863, July 6
TROWBRIDGE, W. P.	New Haven, Conn.	1854, Feb. 6
TRYON, GEORGE W., JR.	Philadelphia, Pa.	1862, Dec. 15

* Deceased.

VAN BENEDEN, PIERRE J.	Louvain, Belgium.	1857, July 28
*VEATCH, J. A.	Trinidad, Cal.	1855, July 30
VERHAEGHE, L.	Ostend, Belgium	1857, July 28
WALLACE, W. A.	Los Angeles, Cal.	1854, Aug. 7
WELLINGTON, G. E.	Aurora, Nevada	1864, Nov. 21
WHEATLAND, HENRY, M. D.	Salem, Mass.	1857, April 11
WIDEMANN, FRIEDERICH	Sinaloa, Mexico	1863, Oct. 19

LIFE MEMBERS.

NAMES.	RESIDENCE.	ELECTED.
BLOOMER, H. G.	San Francisco, Cal.	1872, Jan. 15
BOSQUI, EDWARD	San Francisco, Cal.	1864, Nov. 12
BREED, H. L.	San Francisco, Cal.	1872, Oct. 7
BRITTON, JOSEPH	San Francisco, Cal.	1860, ——
BURLING, WM.	San Francisco, Cal.	1872, Oct. 27
COIT, B. HOWARD	San Francisco, Cal.	1872, Nov. 4
COOPER, J. G., M. D.	San Luis Obispo, Cal.	1867, Feb. 18
DONAHUE, PETER	San Francisco, Cal.	1872, Oct. 7
FLOYD, RICHARD H.	San Francisco, Cal.	1872, Nov. 4
HALL, EDWARD F.	San Francisco, Cal.	1872, Oct. 21
HARTSHORNE, BENJ. M.	San Francisco, Cal.	1868, Jan. 4
HARFORD, W. G. W.	San Francisco, Cal.	1872, Jan. 15
KELLOGG, ALBERT, M. D.	San Francisco, Cal.	1866, April 19
MADDEN, THOS. P.	San Francisco, Cal.	1872, April 1
MEYER, WM.	San Francisco, Cal.	1872, Oct. 7
OPPENHEIM, F.	San Francisco, Cal.	1872, Oct. 7
PALMER, JOSEPH C.	San Jose, Cal	1856, Feb. 11
*PIOCHE, F. L. A.	San Francisco, Cal.	1858, Feb. 22

*Deceased.

REY, JAQUES J. . . .	San Francisco, Cal. .	1860, ——
SATHER, PEDER . . .	San Francisco, Cal. .	1872, Nov. 4
SILLIMAN, BENJ. . .	New Haven, Conn .	1864, Dec. 18
TRASK, J. B., M. D. . .	San Francisco, Cal. .	1867, Jan. 7
WILMERDING, J. C. . .	San Francisco, Cal. .	1872, Oct. 7

RESIDENT MEMBERS.

ALLARDT, G. F.
ALVORD, WM.
ANDREWS, HARRY
ANDROS, MILTON
ASHBURNER, WILLIAM
AUSTIN, ALEX.
AVERY, B. P.

BACON, JACOB
BANKS, T. C.
BATES, C. M., M. D.
BAUER, J. A.
BENNETT, THOS., M. D.
BIGELOW, H. H.
BLAKE, JAMES, M. D.
BLAKE, THEODORE A.
BLUNT, WILLIAM
BLUXOME, J., M. D.
BOLANDER, H. N.
BONESTELL, L. H.
BOOKER, WM. LANE
BOWIE, H. P.
BOWMAN, AMOS
BOWMAN, JAMES F.
BRANNAN, S. A. L.
BROOKS, ELISHA
BROWN, JAMES T.
BRUCE, DONALD
BUFFINGTON, J. M.
BUGBEE, J. S.
BURR, E. W.
BUSH, R. J.

CAIRNS, JOHN
CALVERT, WILLIAM, M. D.
CARLETON, HENRY
CARR, EZRA S.
CHAMBERS, A. J.
CHAPMAN, HENRY
COHN, ED.
COLE, R. B., M. D.
COLLIE, WM. H.
COLTON, D. D.
COOPER, ARCHIBALD
CORNWALL, P. B.
CURREY, JOHN
CUTTER, H. F.

DAMERON, JAMES P.
DAVIDSON, GEORGE
DAVIS, A. McF.
DAVIS, HORACE
DAVIS, H. L.
DE CRANO, E. G.
DENISON, C. H.
DENNISON, E.
DE TAVEL, A.
DEWEY, EUGENE E.

DOBLE, ABNER
DOOLAN, WM.
DUPYTREN, J. B. PIGNE, M. D.
DURAND, EMILE

EARL, JOHN O.
EASTERBY, A. Y.
ECKLEY, J. L.
EDMONDSON, T. J.
EDWARDS, HARRY
ELDRIDGE, OLIVER
ELLINWOOD, C. N, M. D.
ELLIS, B. F.
ELOESSER, LEO
*EVANS, ALBERT S.

FARWELL, J. D.
FISHER, WILLIAM J.
FISKE, H. M., M. D.
FOSTER, W. H., JR.
FORGEAUD, V. J., M. D.
FREEBORN, JAMES

GEARY, JOHN F., M. D.
GEDDES, CHARLES
GETHEN, BARRINGTON
GIBBONS, H., M. D.
GIBBONS, H., JR., M. D.
GIBBES, C. D.
GIBSON, REV. OTIS
GILMAN, D. C.
GIRD, RICHARD
GODEFFROY, A.
GOODYEAR, W. A.
GRAY, GEORGE E.
GRISAR, EMILE

HAGGIN, LOUIS T.
HANKS, HENRY G.
HARKNESS, WM.
HARPENDING, A.
HARRISON, RALPH C.
HASELTINE, A. A.
HASTINGS, MARSHALL
HASTINGS, S. C.
HAYES, WM.
HEMME, A.
HEWSTON, GEORGE, M. D.
HEWSTON, JOHN, JR.
HEYNEMANN, H.
HIGHTON, H. E.
HITCHCOCK, C. M., M. D.
HOFFMAN, C. F.
HOFFMAN, J. A.
HOLLADAY, S. W.
HUBBARD, SAMUEL
HUCKS, J. J.
HUERNE, P.
HUGHES, WILLIAM H.
HUTCHINSON, J. S.
HYDE, HENRY C.

JAMISON, J. S.
JANIN, HENRY
JOHNSON, G. S.
JOICE, E. V.

KELLER, HENRY
KNIGHT, WM. H.

LE CONTE, JOSEPH
LEFFINGWELL, WILLIAM
LETTE, GEORGE
LICK, JAMES
LIVERMORE, H. P.
LIVERMORE, O.
LORQUIN, E. F.

McCORMICK, CHARLES, M. D.
McDONALD, J. M.
McDONALD, M. J.
MAYHEW, WM.
MILLER, W. J.
MOSS, J. MORA
MUNSON, O. D.

NELSON, REV. A. J.
NELSON, THOMAS
NEWCOMB, THOMAS W.
NORRIS, WILLIAM

* Deceased.

NORTHAM, E. F.

OGDEN, RICHARD L.

PAXSON, J. S.
PAYOT, HENRY
PERRY, JOHN JR.
PIERSON, J. D.
PRICE, THOMAS
PRICHARD, W. P.

RANSOM, LEANDER
RAYMOND, I. W.
RULOFSON, WILLIAM

SAWYER, A. F., M.D.
SAXE, A. W.
SEARS, WILLIAM H.
SELBY, THOMAS H.
SMEDBERG, J. R.
SMITH, BENJAMIN
SNYDER, J. R.
STEBBINS, REV. H.
STEELE, J. G.
STEWART, H. J.
STOUT, A. B., M. D.
STRETCH, R. H.
*SWAIN, R. B.

TAYLOR, JOHN
TESCHMACHER, H. F.
THORNBERG, W. B.
THROCKMORTON, S. R.
TREADWELL, G. A.
TURRILL, C. B.

WACKENREUDER, VITUS
WAIZMAN, MAX.
WARREN, A.
WATSON, WILLIAM S.
WEEDEN, J. H.
WETMORE, C. A.
WHITING, H. A.
WILLARD, J. F.
WILLEY, JOHN M., M. D.
WILLIAMS, REV. ALBERT
WILLIAMS, H. F.
WILLIAMSON, JOHN
WILLIAMSON, R. S.
WILLSON, SAMUEL M.
WOODWARD, R. B.
WORMSER, ISAAC
WYMAN, G. D.
WYTHE, REV. DR. J. H.

YALE, CHARLES G.

* Deceased.

California Academy of Sciences.

THE

PRESIDENT'S ANNUAL ADDRESS,

DELIVERED JANUARY 6TH, 1873.

TOGETHER WITH THE CONSTITUTION,

ADOPTED MAY 15, 1871,

AND

LIST OF OFFICERS AND MEMBERS FOR 1873.

SAN FRANCISCO:
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1873.